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7 Employer Size, Pay, and the Ability to Pay in the Public Sector

Charles C. Brown and James L. Medoff

There is much evidence that private sector employers categorized as "large" pay more than employers categorized as "small," even when their union status is the same (Brown and Medoff 1986). There is, however, much less information that can help us answer two key questions about this wage differential: How can larger private sector employers pay more and still survive? Why do they do so?

In this paper we move from the private sector to the public sector, while still focusing on the employer size–wage differential. Published tabulations of Census of Governments data (U.S. Census Bureau 1979b) suggest that larger government units *do* pay substantially higher wages than smaller ones. For example, average full-time earnings are 13 percent higher for special districts with more than 100 employees than for districts with less than 10 workers. A similar relationship holds when one divides the districts according to function and for other types of local government.[1] Moreover, the size-wage relationship is close to monotonic across the size distribution. When we investigate the magnitude of this differential more carefully in both union and nonunion settings, we find size-wage effects comparable to those found in the private sector. After this foray, we deal with the more difficult questions of how the larger employers can afford to pay more and why they do so.

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One assumption made implicitly or explicitly in most discussions of size-wage differentials in the private sector is that larger employers have a greater "ability to pay." This is because employer size is thought to be positively related to product market power and to the actual and, presumably, potential rate of return on capital. The primary problem with testing whether monopoly power or above average profitability are necessary conditions for the existence of a size-wage differential is that product market power and profitability are two of the most difficult concepts in economics to measure. Moreover, in the case of profitability we have a very serious "endogeneity" problem, since the magnitude of the wage rate will most certainly be a determinant of the rate of return on capital.

Does "ability to pay" lie behind the size-wage effect in the public sector? While this question has not been addressed empirically to date, an informed response can be based on the outcomes of two statistical analyses. The first would determine whether the size of fiscs is positively related to the affluence of their citizens. The second would assess whether the remuneration a community pays is related to its economic well-being, other things, in particular the prevailing wage, held constant.

If ability to pay does in fact matter for the generation of size-wage differentials, the detection of its role should be greatly enhanced with data for public units. First of all, the ability of a state or local government to pay a given wage can be assessed quite well with truly exogenous variables, such as the average family income of the area's residents or the value of the property stock per resident. In addition, where collective bargaining occurs, arbitrators making rulings about public sector wage settlements generally make reference to an area's ability to pay. This fact is consistent with the guidance offered in legislation concerning public sector dispute resolution. To be more precise, in sixteen out of the twenty-six states with laws providing for binding arbitration, ability to pay is mentioned in the guidelines for the arbitrator. Moreover, managements and unions bargaining in the public sector also appear to pay close attention to an area's inability or ability to afford wage increases.

If ability to pay plays a key role in the size-wage effect story, we should certainly be able to view its performance in the unionized portion of the public sector. If this import is not conditional on the presence of collective bargaining, we should be able to observe it with data for public units where there is no union coverage. If ability to pay is closely associated with the magnitude of the size-wage differential among nonunion public employees, one would have good reason for believing that it operated in a similar fashion throughout the private economy.

Section 7.1 of this study presents evidence supporting the belief that ability to pay should matter in the wage determination process, espe-

cially among public sector employees covered by collective bargaining. Section 7.2 presents econometric results based on two data files which indicate that there is a sizeable positive relationship between employer size and pay in the public sector, as was the case among private employers. Section 7.3 first asks whether the size of public employers is positively related to their ability to pay and then, in light of an affirmative response, asks about the importance of this relationship in the generation of the one between size and pay.[2]

Our primary findings concerning the relationships between employer size, pay, and the ability to pay in the public sector are as follows:

1. Larger public employers pay substantially more for workers with given characteristics than do those who are smaller, regardless of whether the workers are covered by collective bargaining.
2. Larger public employers are found in areas where family income and the value of property are above average.
3. The ability of an area to pay higher wages, as measured by mean family income or property value per resident, is a key determinant of whether the area does in fact pay more.
4. Measured ability to pay "explains" only about 15 percent of the public sector size-wage effect.
5. Controlling for employer size and measured ability to pay usually reduces the measured impact of collective bargaining on wage rates, but the changes are uniformly less than 20 percent of the union effect before these controls are added.

7.1 Ability to Pay and Wage Determination

The belief that the ability of an employer to pay higher wages will condition whether or not it does so can be supported by examining several sources: the writings of knowledgeable observers of the wage determination process, the decisions of arbitrators in arbitrations concerning wages, and the language of state statutes providing for the resolution of wage disputes involving public sector employees.

Those who closely watch wages being set in the U.S. public sector list an employer's ability to pay as a relevant criterion for the final settlements observed. However, while these scholars and practitioners believe that ability to pay matters, they do not regard it as the primary criterion in the wage determination process.

Only a small percentage of wage settlements throughout the U.S. economy involve arbitration. While the percentage is larger in the public sector, even here interest arbitration is the exception not the rule. Nevertheless, it is instructive to examine the wage-setting criteria chosen by arbitrators and the weight given to each, since this choice and weighting are likely to reflect what happens in the absence of an arbitrator.

In his 1982 address to the National Academy of Arbitrators, R. Theodore Clark, Jr. said:

> Substantially all the public-sector interest arbitration statutes require—either explicitly or implicitly—that financial limitations on a public employer's ability to pay must be considered by the interest arbitrator. That was the specific holding of the New Jersey Supreme Court in "New Jersey State Policemen's Benevolent Association Local 29 vs. Town of Irvington." The court ruled that an interest arbitrator must "take account of a municipality's cap law constraints prior to the rendition of an award." Nevertheless, I get the very definite impression that many interest arbitrators wish that ability-to-pay arguments would simply disappear. Russell Smith at the 1971 meeting of the National Academy of Arbitrators, after commenting on the serious problems confronting arbitrators in attempting to assess an inability-to-pay argument, candidly observed that the inability-to-pay criterion, "if deemed to be relevant or required by law to be taken into consideration, is likely to be taken less seriously than others, such as comparison data." My own impression is that the attitude of many arbitrators toward the inability-to-pay criterion ranges from indifference to hostility. I also have the feeling in some cases that while a public employer's ability to pay is considered, it is considered in form only and not in substance (Clark 1982, 249–50).

The lawyer Charles C. Mulcahy (1976, 92) adds that while the financial ability of a government to meet a new wage bill is generally accepted as a legitimate factor in making an arbitration award, it too "has been sorely neglected in many instances because local government officials did not adequately and professionally present" evidence concerning their ability or inability to meet certain wage demands.

An examination of these statutes brings into focus the criteria that most arbitrators consider in ruling in wage arbitrations. In the preponderance of the laws explicit reference is made to an employer's ability to pay. However, the list of relevant criteria is generally not short. A sense of what the typical list looks like can be gained by considering the following one from the Illinois statute:

1. The lawful authority of the employer.
2. Stipulations of the parties.
3. The interests and welfare of the public and the financial ability of the unit of government to meet those costs.
4. Comparison of the wages, hours, and conditions of employment of the employees involved in the arbitration proceedings with the wages, hours, and conditions of employment of other employees performing similar services and with other employees generally:
   a. in public employment in comparable communities;
   b. in private employment in comparable communities.

5. The average consumer prices for goods and services, commonly known as the cost of living.
6. The overall compensation presently received by the employees, including direct wage compensation, vacation, holidays, and other excused time, insurance and pensions, medical and hospitalization benefits, the continuity and stability of employment, and all other benefits received.
7. Changes in any of the foregoing circumstances during the pendency of the arbitration proceedings.
8. Such other factors, not confined to the foregoing, which are normally or traditionally taken into consideration in the determination of wages, hours, and conditions of employment through voluntary collective bargaining, mediation, fact-finding, arbitration or otherwise between the parties, in the public service or in private employment (Mulcahy 1976, 91–92).

While most arbitrators will have considered the ability or inability of employers to pay, the weight attached to this criterion is likely to vary significantly. The nature of this variation was delineated clearly in a 1948 arbitration involving the Twin City Rapid Transit Company by the board's chairman John T. Dunlop, who wrote:

> (1) In the case of properties which have been highly profitable over a period of years, the wage rate would normally be increased slightly over the levels indicated by other standards; (2) in the case of persistently unprofitable firms, the wage rate would normally be reduced slightly from the levels indicated by other standards; (3) in the case of the companies whose financial record over a period of years falls between these extremes, the wage rate level would be determined largely by other standards (Elkouri and Elkouri 1985, 826).

In sum, the opinions of arbitrators and the language of statutes referring to dispute resolution in the public sector both lend credence to the position that in wage determination ability to pay matters, but it is certainly not all that matters. Similar institutional evidence is not available for public sector workers not covered by collective bargaining. Despite this gap, we believe the importance of ability to pay in the public sector needs to be assessed empirically for three reasons. First, according to the Current Population Survey data we analyze below, the percentage of state and local employees covered by collective bargaining is quite high: 48 percent of those labeled "white collar" and 44 percent of those labeled "blue collar" or "service". Second, much of what we observe under collective bargaining differs only in degree from what happens in nonunion settings; while the codification embodied in a collective agreement and a formal agent clearly matter, it is wrong to believe that most groups of employees that are not rep-

resented by a union are not organized in other ways. And finally, the belief that the ability-to-pay criterion is more important in the presence of collective bargaining is testable. As we will see later, the importance of this criterion seems to be as great among employees who are not covered by a collective agreement as among those who are, at least in the public sector.

7.2 The Public Employer Size–Wage Effect

This section provides evidence of the relationship between employer size and pay in the public sector. Employer size can mean either the number of workers employed at the individual's worksite or the number employed by the individual's employer at all worksites. For private sector workers, these are usually called "establishment" and "company" size. For government employees, the second concept is less well defined; dictated largely by data availability, we define it to equal the total employment of a governmental unit and refer to it as "government size."

7.2.1 Evidence from Current Population Surveys

The only data files containing both size measures for government employees[3] are the May 1979 and May 1983 Current Population Surveys (CPS). We pooled these two files. Our analysis is based on the sample of 5,723 state and local government workers for whom data on wage rates and the other variables we use were available.

We estimated wage equations with the usual explanatory variables: education, tenure, experience, race, sex, location, and industry and occupation dummy variables. We also used a dummy variable to distinguish 1979 from 1983 observations and state from local government workers. Finally, we analyzed the variables of interest: employment at worksite, employment of the government unit, and coverage by a union or employee association contract. Our results are reported in table 7.1.

The first four lines of table 7.1 suggest two conclusions.[4] First, both worksite employment and government employment matter: those working for larger employers by either measure earn higher wages. Second, the estimated impact of collective bargaining coverage is reduced, *but not dramatically,* when we control for employer size.

When the sample is split by collar color and unionization, the main finding is that government size matters a great deal for covered blue-collar workers but not at all for uncovered blue-collar workers. Given the nontrivial standard errors for subgroup size effects, the similarity of the site-size premia are striking.

Table 7.1 **Effects of Employer Size and Union Coverage on ln(Wage), State and Local Government Workers, Current Population Survey, 1979 and 1983**

Sample	ln(Site Employment)	ln(Government Employment)	Covered
All Workers	—	—	0.069
(N = 5,723)	—	—	(0.010)
	0.016	—	0.067
	(0.003)	—	(0.010)
	—	0.021	0.056
	—	(0.003)	(0.011)
	0.010	0.018	0.057
	(0.003)	(0.003)	(0.010)
Union White-Collar Workers	0.015	—	—
(N = 1,956)	(0.005)	—	—
	—	0.022	—
	—	(0.005)	—
	0.010	0.019	—
	(0.005)	(0.006)	—
Nonunion White-Collar Workers	0.016	—	—
(N = 2,077)	(0.005)	—	—
	—	0.027	—
	—	(0.005)	—
	0.009	0.024	—
	(0.005)	(0.005)	—
Union Blue-Collar Workers	0.025	—	—
(N = 749)	(0.007)	—	—
	—	0.035	—
	—	(0.007)	—
	0.015	0.030	—
	(0.007)	(0.007)	—
Nonunion Blue-Collar Workers	0.014	—	—
(N = 941)	(0.007)	—	—
	—	−0.004	—
	—	(0.007)	—
	0.018	−0.011	—
	(0.008)	(0.008)	—

Note: Other variables held constant in the estimation are: education, tenure, tenure squared, experience, experience squared; dummy variables for race, sex, metropolitan location, region (3), industry (27), occupation (8), local government, and year.

It is natural to compare these findings to those we obtained for the private sector (Brown and Medoff 1986). Table 7.2, which is based on May 1979 CPS private sector workers, provides a basis for such a comparison.[5]

While union coverage matters less in the public sector than in the private sector, the employer size effects are, in the aggregate, broadly similar. This is particularly evident when one focuses on the sum of site and company coefficients—the effect of making the company (or government) larger by expanding each worksite. The effect of employer size on the wages of white-collar workers is very similar to the all-worker results. Among blue-collar workers a different pattern appears. In the public sector, the impact of employer size is greater among union than among nonunion workers, while in the private sector the reverse is true. However, one probably should not make too much of this last

Table 7.2 **Effects of Employer Size and Union Coverage on ln(Wage), Private Sector Workers, Current Population Survey, 1979**

Sample	ln(Site Employment)	ln(Company Employment)	Covered
All Workers	0.028	—	0.123
(N = 13,829)	(0.002)	—	(0.009)
	—	0.020	0.116
	—	(0.001)	(0.009)
	0.015	0.013	0.113
	(0.002)	(0.002)	(0.009)
White-Collar Workers	0.029	—	0.049
(N = 6,901)	(0.003)	—	(0.015)
	—	0.020	0.044
	—	(0.002)	(0.015)
	0.019	0.012	0.043
	(0.003)	(0.002)	(0.015)
Union Blue-Collar Workers	0.014	—	—
(N = 2,337)	(0.004)	—	—
	—	0.017	—
	—	(0.003)	—
	0.002	0.016	—
	(0.005)	(0.004)	—
Nonunion Blue-Collar Workers	0.026	—	—
(N = 4,591)	(0.003)	—	—
	—	0.018	—
	—	(0.002)	—
	0.011	0.013	—
	(0.005)	(0.003)	—

Note: Other variables held constant in the estimation are: same as table 7.1, except for local government and year dummies.

result, since the pattern for private sector workers shown in table 7.2 is not always confirmed in other data sets (Brown and Medoff 1986).

7.2.2 Evidence from the Census of Governments

The CPS has the advantage of reporting number of workers at the individual's worksite and the individual's schooling, and so forth. As is typical of surveys of individuals, there is little information about their employer apart from the size variables, and the fact that these are coded as categories is undesirable. The Census of Governments file, in contrast, has no information about the characteristics of the workers (apart from the functional category they work in) but does have accurate measures of government size and better information about labor relations characteristics. It also identifies the governments involved, a fact essential to (eventually) measuring ability to pay.

We began with 82,973 governments included in the 1982 Census of Governments file. After deleting those with data reported for a year prior to 1982 and any zero-employment "governments," the sample size fell to 31,267.[6]

Our dependent variable is the logarithm of the average wage, defined as monthly payroll divided by full-time plus half of part-time employment. We control for the proportion of workers who are part-time, so errors in estimating the appropriate average weight to part-time workers in computing full-time equivalent employment should be dealt with by that variable. We also control for the shares of employment devoted to each of twenty-nine governmental functions and for region and metropolitan or nonmetropolitan location.

The explanatory variables of primary interest are government size and the labor relations variables. Our size measure is the logarithm of the number of individuals employed by the government in question.[7] The Census of Governments file includes several labor relations variables; our strategy is to try the various alternatives in a fairly agnostic way. The first set of labor relations variables are dummy variables that capture the type of labor relations policy, if any, of the government in question. One dummy variable distinguishes governments that have a labor relations policy from those that do not. As defined in the Census of Governments file, there are two types of policy: a collective bargaining policy or a meet and confer policy.[8] We include additional dummy variables for each of these. It is possible for a government to have *both* types of policies, so the first dummy is not the exact sum of the other two. Second, three alternative measures of the degree of organization are available: the proportion of workers covered by contracts, in bargaining units, and unionized.

Each of these labor relations variables is reported separately for school and nonschool employers: we have aggregated them. Thus, for example, a government that has a "bargaining policy" for its school employees only would have a value equal to the ratio of (full-time equivalent) school to total employment.

Our results are presented in the first six regressions in table 7.3. The main finding here is a large and statistically significant effect of government size on wages, controlling for differences among different-sized governments in the distribution of employment across functions. To get a sense of the importance of the 0.039 coefficient for ln(government size), we calculated the difference in wages by governments one standard deviation above and below the mean of ln(government size). Since that standard deviation is 1.83, the implied proportional wage difference is 2(1.83)(0.039) = 0.125. The size premium does not depend on which measure of worker organization we utilize. Controlling for size has little effect on the coefficients of the labor relations dummies or the proportions organized.

The coefficients of the collective bargaining variables suggest that each of the labor-management policies are associated with higher wages compared to the no-policy alternative. According to the first line of table 7.3, a meet and confer policy raises ln(wage) by 0.12 (= 0.125 − 0.005), a collective bargaining policy by 0.17 (= 0.125 + 0.047), and a combination of policies by about the same amount. This general pattern holds for the other specifications as well. The major puzzle is the lack of the expected positive coefficient for the degree of unionization variable.

We also estimate similar equations with the logarithm of monthly wages plus fringes as a dependent variable. Perhaps because of incomplete reporting on the tape (U.S. Census Bureau, 1985, 15), these fringes amounted to only about 7 percent of payroll, and their inclusion in the wage measure did not qualitatively change our earlier findings.

Disaggregation by collar color as in tables 7.1 and 7.2 is not possible with the Census of Governments data, and the contract coverage data refer to the proportion of the government's workers covered by a contract rather than an individual worker's status. We divided the sample by proportion covered, with the groups being none, a minority, and a majority. The size coefficient is essentially the same for all three groups. Unlike table 7.1, size matters here regardless of coverage, though, if anything, the impact rises with coverage.

The labor relations coefficients now tell a generally plausible if complicated story. Even for governments with no union contracts, having a labor relations policy—especially a collective bargaining policy—is associated with higher wages.[9] For governments with some workers

Table 7.3 **Effects of Employer Size and Union Coverage on ln(Wage), Census of Governments (1982)**

Sample	ln(Government Size)	Dummy Variables for: Labor Relations Policy	Collective Bargaining	Meet & Confer	Proportion of Workers: Covered by Contracts	In Barg. Units	Organized
All Local	—	0.125	0.047	−0.005	−0.022	—	—
Governments	—	(0.017)	(0.017)	(0.010)	(0.017)	—	—
(N = 31,267)	0.039	0.089	0.045	−0.005	−0.047	—	—
	(0.002)	(0.017)	(0.017)	(0.010)	(0.017)	—	—
	—	0.127	0.037	−0.004	—	−0.004	—
	—	(0.018)	(0.015)	(0.010)	—	(0.017)	—
	0.039	0.101	0.027	−0.004	—	−0.033	—
	(0.002)	(0.018)	(0.015)	(0.010)	—	(0.017)	—
	—	0.125	0.036	−0.004	—	—	0.001
	—	(0.017)	(0.015)	(0.010)	—	—	(0.001)
	0.039	0.089	0.021	−0.004	—	—	0.001
	(0.002)	(0.017)	(0.015)	(0.010)	—	—	(0.001)
Local	—	0.078	0.040	0.032	—	—	—
Governments	—	(0.061)	(0.043)	(0.059)	—	—	—
with Cov. = 0	0.039	0.056	0.029	0.017	—	—	—
(N = 21,309)	(0.003)	(0.060)	(0.043)	(0.058)	—	—	—

(continued)

Table 7.3 (continued)

Sample	ln(Government Size)	Dummy Variables for: Labor Relations Policy	Collective Bargaining	Meet & Confer	Proportion of Workers: Covered by Contracts	In Barg. Units	Organized
Local	—	0.162	−0.134	−0.011	0.238	—	—
Governments	—	(0.048)	(0.037)	(0.006)	(0.027)	—	—
with $0 < \text{Cov.} < 50$	0.040	0.172	−0.128	−0.013	0.241	—	—
(N = 3,844)	(0.003)	(0.047)	(0.036)	(0.006)	(0.027)	—	—
Local	—	0.005	0.013	0.002	0.096	—	—
Governments	—	(0.063)	(0.049)	(0.004)	(0.010)	—	—
with Cov. ≥ 0.50	0.043	0.050	−0.045	0.002	0.078	—	—
(N = 6,114)	(0.002)	(0.061)	(0.047)	(0.004)	(0.010)	—	—

Note: Other variables held constant in the estimation are: shares of employment devoted to individual functions (29), proportion of workers who are part-time; dummy varables for region (3) and SMSA.

covered, the extent of coverage matters, though at a decreasing rate, as might be expected if initial contract inroads had spillover effects.

7.3 The Role of Ability to Pay

Because the governments in the Census of Governments file are separately identified, we can match data on the characteristics of those who live in that government's jurisdiction or in the surrounding area from the 1980 Census of Population. Unfortunately, this proved possible only for 4,775 larger governments (counties, municipalities, and townships) for whom matching Census of Population data were available.

The equations in the first two lines of table 7.4 are the same as those in table 7.3, except for the smaller sample. The size effect is unaffected. The collective bargaining policy dummy is no longer important, but the proportion covered by contracts now has the expected positive effect. Using the proportion in bargaining units or the proportion who are members of employer organizations as the union coverage variable produced quite similar results.

The main result in table 7.4 is contained in lines 3 and 4. The two control variables, which appear for the first time at this point, are the logarithm of the average wage in the county (defined as aggregate household wage and salary and self-employment earnings divided by aggregate weeks worked) and the logarithm of median family income in the jurisdiction. The former is intended to capture the effect of variations in wage rates in the government's local labor market, and the latter the wealth or "ability to pay" of its residents. The message of lines 3 and 4 is simple and clear: controlling for ability to pay explains little (12 percent) of the wage premium paid by larger local governments and marginally *increases* the estimated union premium.

The estimated coefficients of the ln(average wage) variable are implausibly small. One might expect a coefficient near one, if local governments pay a fixed proportional markup (or markdown) on wages in their area. Constraining the coefficient of ln(average wage) to equal one left the government size variable virtually unaffected but reduced the coefficient of ln(median income) to -0.416(s.e. $= 0.013$). Thus, the constrained results might lead one to question the importance of ability to pay or to interpret our average wage measure as capturing both the going wage and ability to pay. But the conclusion that size matters remains secure. We have not emphasized these "constrained" results because the constraint is so severe—it is hard to imagine measurement error in ln(average wage) severe enough to produce an unconstrained coefficient estimate of 0.03 when the true coefficient is close to 1.0.

Table 7.4 **Effects of Employer Size, Unionization, and Ability to Pay on ln(Wages), Census of Government, Large-Unit Subsample, 1982**

Sample	ln(Govt. Size)	Dummy Variables for: Labor Relations Policy	Collective Bargaining	Meet & Confer	Proportion of Workers Covered by Contracts	ln(Avg. Wage in County)	ln(Median Family Income in Jurisdiction)
All "Large"	—	0.104	−0.001	0.002	0.051	—	—
Local Governments	—	(0.013)	(0.012)	(0.007)	(0.010)	—	—
(N = 4,775)	0.040	0.096	−0.004	0.002	0.043	—	—
	(0.003)	(0.012)	(0.011)	(0.007)	(0.009)	—	—
	—	0.107	−0.012	0.005	0.057	0.030	0.305
	—	(0.012)	(0.011)	(0.007)	(0.009)	(0.020)	(0.018)
	0.035	0.100	−0.014	0.004	0.051	0.034	0.295
	(0.003)	(0.011)	(0.010)	(0.007)	(0.009)	(0.019)	(0.018)
"Large" Local	0.038	−0.004	0.022	0.098	—	—	—
Governments	(0.004)	(0.034)	(0.024)	(0.033)	—	—	—
with Cov. = 0	0.026	0.016	0.012	0.093	—	0.038	0.310
(N = 2,950)	(0.004)	(0.031)	(0.022)	(0.030)	—	(0.026)	(0.023)
"Large" Local	0.035	−0.055	−0.109	−0.009	0.185	—	—
Governments	(0.007)	(0.066)	(0.047)	(0.009)	(0.037)	—	—
with 0 < Cov. <0.50	0.035	−0.046	−0.100	−0.002	0.193	−0.018	0.290
(N = 956)	(0.006)	(0.062)	(0.044)	(0.009)	(0.035)	(0.039)	(0.038)
"Large" Local	0.048	−0.003	−0.038	0.005	0.014	—	—
Governments	(0.006)	(0.471)	(0.423)	(0.009)	(0.010)	—	—
with Cov. ≥ 0.50	0.052	−0.068	0.011	0.005	0.014	0.068	0.255
(N = 869)	(0.005)	(0.421)	(0.379)	(0.008)	(0.009)	(0.042)	(0.041)

Note: Other variables held constant: see table 7.3.

We also used the matched government-population file to test another conjecture—that the wage premium paid by larger local governments is because they are large relative to their labor market. Adding the logarithm of the ratio of government employment to *county* population produced a significant *negative* coefficient (−0.032) for the added variable (and a coefficient of 0.055 for the government size variable), so the large-demand model does not explain the size-wage effect. This result implies, however, that if we enter ln(government size) and ln(county population) separately, the coefficient of the former falls to $0.055 - 0.032 = 0.023$.[10]

The remainder of table 7.4 separates the sample into three parts, where the proportion of the work force covered by collective bargaining is zero, between zero and one-half, or greater than or equal to one-half. These results indicate that the importance of ability to pay in explaining either cross-unit wage rates or the cross-unit, size-wage effect does *not* increase with the extent of collective bargaining coverage. In fact, ability to pay is of somewhat greater importance in the units with no collective bargaining than in the units with the most in terms of both its direct effect on wages and its capacity to explain the size-wage effect. As in the earlier tables, size effects are also larger in organized jurisdictions.

While median family income is a widely used measure of the economic status of a jurisdiction's residents, it neglects the taxable wealth represented by commercial enterprises in the jurisdiction. For a smaller sample of jurisdictions, property values (which count residential and nonresidential wealth) can be used to fill this gap.

The Census of Governments collects assessed property values from over 13,500 assessing units. Unfortunately, the ratio of assessed to market value is known to vary widely across jurisdictions. However, the census collected the assessed and market values of 55,300 property sales in a sample of jurisdictions, from which estimates of the market value of all locally assessed property by jurisdiction are calculated (U.S. Census Bureau 1984, 118–22).

By matching jurisdictions where that data on property values attained census standards for publication to those with Census of Population data on family income and average wages (and the Census of Government data on payroll, employment, and labor relations) we arrived at a final sample of 669 observations. We then added ln(market value of property per capita) to the equations in table 7.4. Results are presented in table 7.5. Comparison of the first two equations of table 7.5 with analogous table 7.4 entries shows that, in this smaller sample, both government size and the proportion organized have larger coefficients than in the larger (table 7.4) sample. The last three equations in table 7.5 demonstrate that neither of these coefficients is greatly affected by

Table 7.5 **Effects of Employer Size, Unionization, and Ability to Pay on ln(Wages), Census of Government, Large-Unit Subsample with Property Value Data (N = 669)**

ln(Government Size)	Dummy Variables for: Labor Relations Policy	Collective Bargaining	Meet & Confer	Proportion of Workers Covered by Contracts	ln(Average Wage in County)	ln(Median Family Income in Jurisdiction)	ln(Property Value per Capita)
0.066	0.103	−0.059	−0.004	0.143	—	—	—
(0.007)	(0.027)	(0.027)	(0.016)	(0.031)	—	—	—
0.057	0.097	−0.051	−0.011	0.128	−0.019	0.376	—
(0.006)	(0.025)	(0.025)	(0.014)	(0.028)	(0.064)	(0.057)	—
0.059	0.104	−0.054	−0.007	0.135	—	—	0.082
(0.006)	(0.026)	(0.026)	(0.015)	(0.029)	—	—	(0.011)
0.055	0.098	−0.049	−0.12	0.126	−0.032	0.341	0.040
(0.006)	(0.025)	(0.024)	(0.014)	(0.028)	(0.064)	(0.057)	(0.011)

Note: Other variables held constant: see table 7.3.

adding family income and property value as controls. While there is evidence that both ability-to-pay measures affect wages, both are loosely enough related to government size that their inclusion reduces the estimated size effect by at most one-sixth of its original value. The impact of the proportion organized is even less sensitive to the inclusion of the ability-to-pay variables.

7.4 Conclusion

Larger public employers pay substantially more for a given quality of labor than do public employers who are smaller, even when their collective bargaining status is the same. Despite the fact that ability to pay is positively related to wage rates in the public sector and that larger fiscs are richer, financial capacity can explain very little of the public employer size–wage differential.

Thus, ability to pay plays a very small role in explaining the fact that larger employers pay more in the sector where we would expect this role to be the largest. As a result, we must turn to other actors in trying to explain why size-wage differentials exist and how they can persist.

Notes

1. The published tabulations measure size by jurisdiction population rather than number of employees for counties, municipalities, and townships, and by enrollment for school districts.

2. We sampled the public sector wage studies surveyed by Freeman (1986). Size of government receives surprisingly little attention in these studies. Often it is not included; sometimes it is included as a "control" whose coefficient is not reported. In any case, the minority of studies that include both size and ability to pay as wage determinants (e.g., Frey 1975; Ehrenberg, Chaykowski, and Ehrenberg 1986) do not report size coefficients with and without ability to pay variables, as would be needed to judge whether ability to pay was an important part of the size-wage relationship.

3. Our "government employment" variable is based on a CPS question for which interviewers received the following instruction: "The employer of Federal, State, and local government employees . . . is the *highest* appropriate governmental level. For example, if a person works for the county circuit court, the employer is the county government, not the circuit court." (U.S. Census Bureau 1983, 7) Our "site employment" is employment at "the person's worksite, the place where the person performs his/her major activities or duties."

The CPS reports both size variables as categories (1–24, 25–99, 100–499, 500–999, and 1,000 or more). Our continuous size measures use category means. For local government workers, we measure "government size" as the average level of full-time equivalent employment in the reported size class in the individual's state, using 1977 Census of Government tabulations (U.S.

Census Bureau 1979a, 428–35). For state government workers, "government size" is the number of full-time equivalent workers employed by the state (U.S. Census Bureau 1978c, 317). Our "site size" variable is defined as the average level of employment of establishments in the individual's site-class, using *County Business Patterns* data (U.S. Census Bureau 1978a, 3). These data relate to private sector establishments, but we know of no comparable series for public sector workers.

4. We obtained similar results with the subsample of 4,008 local government workers.

5. Because so few private sector white-collar workers are unionized (less than 11 percent in our CPS file), we did not separate white-collar workers by union status.

6. The proportions of cases deleted by type of government were: counties, 18 percent; municipalities, 62 percent; townships, 73 percent; special districts, 81 percent; school districts, 23 percent. Zero employment accounted for most of the special-district deletions, while noncurrent data accounted for the majority of deletions for other government types. We decided not to use the noncurrent data because the labor relations variables were current values, and because we know of no a priori reason to expect nonreporting to be correlated with the error term in the equation that determines the wage rate.

7. "Government" is defined as an "organization which, in addition to governmental character, has sufficient discretion in the management of its own affairs to distinguish it as separate from the administrative structure of any other governmental unit" (U.S. Census Bureau 1978b, 14). In addition to counties, municipalities, and townships, school districts and special districts are counted as separate governments if they are sufficiently independent. Only 8 percent of all school systems (with 19 percent of all public school enrollment) are classified as separate, independent school districts rather than part of a larger government. Independent "special districts," often organized for single functions, accounted for 26,000 of the 80,000 local governments in 1977. For example, the Massachusetts Bay Transit Authority and the Boston Housing Authority are separate governments, but the Boston School Committee is not.

8. Collective bargaining refers to "negotiations in which both management and employee representatives are equal legal parties in the bargaining process and . . . the end result . . . is a mutually binding contractual agreement." "Meet and confer discussions" refers to "the process by which the public employer consents to discuss conditions of employment with representatives of an employee organization. . . . The employer is, however, not legally bound to enter into these discussions, nor to abide by any resulting memorandum of understanding" (U.S. Census Bureau 1979b, 2).

9. For governments with some workers covered, the various types of labor relations policies have small estimated effects; the exception is meet and confer policies when a minority of workers are covered, where the effect is 0.16 ($= 0.172 - 0.013$) when size is included. At first, a government with workers covered by collective bargaining would seem to necessarily have labor relations policy (indeed, a collective bargaining policy). But recall that these "dummies" are in fact weighted averages of separated dummies for education and other workers. Thus, if the teachers are covered but other workers are not, the labor relations and collective bargaining "dummies" take on fractional values.

10. We also considered the possibility that it is the population of the jurisdiction rather than its number of employees per se which influences wages. When the logarithm of jurisdiction population was added as an additional con-

trol variable to the second equation in table 7.4, it was significant (with a coefficient of 0.021) and the size of government coefficient fell to 0.022(s.e. = 0.005). However, when jurisdiction population was added to the fourth equation in table 7.4 (i.e., county population and median income held constant), its coefficient was a statistically insignificant 0.006, the government employment coefficient was 0.030 (s.e. = 0.005), and the remaining coefficients were not appreciably affected by its inclusion.

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Comment Daniel S. Hamermesh

Brown and Medoff have replicated their work on the private sector and have demonstrated that larger employers (in the public sector) pay higher wages to observationally identical workers. It is quite doubtful that measuring compensation more broadly would affect the result appreciably or that adding any additional, imaginable, obtainable control variables would overturn the finding. Nonetheless, a number of extensions seem worthwhile.

First among these is an examination of whether larger jurisdictions offer greater promotion opportunities and more jurisdiction-specific training. One might expect this to occur and, if it does, to affect the measured size–*lifetime earnings* relationship. To circumvent this potential problem by following workers over time, the authors, or other interested researchers, should obtain longitudinal data on workers and their characteristics that can be linked to data on the governments for which they work. Such data are not readily available in the United States, but foreign alternatives may be useful for this purpose. Data on job changers could also be used, as in Krueger (chap. 8, this volume), to analyze whether unmeasured individual characteristics are producing a spurious size-wage effect.

There is a general belief that government employment became less secure in the 1970s than it had been previously. Layoffs of government workers, due in some cases to reductions in demand (e.g., because of declines in the size of the school-age population) and in others to union-imposed wage increases that move governments up the demand schedule, increased the risk of job loss in the public sector relative to private employment. If markets work at all, this should have reduced the compensating wage differential for such risk between the private and public sectors. More important for our purposes, if the risk of layoff increased especially in larger jurisdictions, it could account for part of the size-wage differential in public employment in the late 1970s and early 1980s. It is not easy to discover the importance of this potential cause of the differential; at the least, though, one could examine whether the risk of job losses in public employment is greater in larger jurisdictions or at larger sites.

While Brown and Medoff make some effort to account for differences in occupation in the estimates using the CPS samples, the occupations are defined very broadly. If there is a compensating differential for positions of responsibility, the average differential will be greater in

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larger jurisdictions and at larger sites. Thus part of the size-wage relationship may be accounted for by a failure to hold constant satisfactorily for occupational level. This possibility could be easily examined if the authors were to use readily available data on salaries in a narrowly defined occupation, for example, classroom teachers or bus drivers, and relate them to site or jurisdiction size.

All of these extensions are worth pursuing and should be pursued. I doubt, though, that they will obliterate the size-wage effect the authors have found. We should accept their findings in both the public and private sectors as "true facts," though relatively unsurprising ones, and endeavor to explain why they arise. In the context of the private sector, this means rationalizing the simultaneous existence of firms in the same market having different labor costs; in the public sector it requires the more difficult task of explaining why voters in larger jurisdictions want higher-paid public servants, or, alternatively, why taxpayers remain in those jurisdictions. Such rationalization requires more than the careful presentation of data that constitutes this study.

The authors show that union coverage has less effect on wage differentials than do public policies that encourage bargaining. This result suggests that the major cause of higher wages under collective bargaining is not union coverage but rather public leniency toward workers' exercising their rights collectively. This accords with the conservative view that unionism expanded in the United States in the 1930s mainly because of encourgement provided by federal policy. It indicates, though it by no means proves, that union successes depend crucially more on their political clout than on their ability to attract members or to extract rents from firms. It is not a very happy conclusion for those who see public attitudes, and their reflection in public policy, as becoming increasingly negative toward unionism.

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